Hi everyone, my name is Steven Wagle and I perform and transcribe microonal music in a way that lots of people pretend is impossible. Lately, I've been posting a whole slew of transcriptions from microonal music on the internet that looks awesome on paper and is also relatively self-explanatory.
Today though, I'd like to explain some of the rationale behind this latest transcription because it's about a non-western style where the modal logic is quite intense. That's right. Today we are going to get into Georgian music theory. [singing]
[music]
[singing]
[music]
For those of you who are unaware, Georgia is a European country bordered by Russia, Azarbaian, Turkey, and Armenia. The culture is unusually isolated and the regional music is exceedingly microonal, often vocal three-part music accompanied by other instruments with one main melody part. to me a westerner. The text of traditional Georgian ac capella music sounds sort of like Russian, though Georgian is a Cardellian language that has no relation to any other language family in the world. Their music gives us insight into one of the oldest and most unique polyonic traditions that exists. Let's dig in.
Now, I'm not here to rehash all the music's main features, but my take on the tuning system logic is kind of necessary for a coherent transcription.
Official disclaimer. I am not a Georgian music expert. I am not an ethnomusicologist
and have only researched this enough to get an idea of how to transcribe things. Doing a larger project would be more work than is recreational to me. So, take the things I say with a grain of salt and research things yourself if you want a more in-depth look. Please don't be scared to point out things I may be wrong about. I'm doing my best to be accurate and realize there's so much more one could know about these things and hold the utmost respect for their cultural practices. I listed some sources in the description and yes, I know that Georgian music is a hot transcription topic and that Filimon Corid transcribed several of the early chants into Western music notation. From what I can see, Filimon's work uses standard 12 notation, but with an assumption of the microones built in. In his day, there was lots of arguing about

whether 12 notation was capable enough of transmitting the information. From what I observe, 12 tet notation with addendums about step intonation could suffice.
[snorts] My first encounter with authentic Georgian music was Trio Kovkasia's traditional songs from Georgia. I decided to transcribe the Moraval Jamiier, mainly because it was the first song and seemed emblematic of many of the features I was hearing. The Moraval Jamier is a common song that many other groups have sung too. For example, here's some other renditions I found.
>> [singing and music]
>> We are
I desire.
[singing]
[music and singing]
I'm sure others have transcribed this arrangement numerous times due to its popularity. Hearing these other renditions helped me realize what chords the singers were aiming for, thus informing me of the practice. Such music came up as I was trying desperately to find some resources to pronounce the words and syllables. Luckily, they just sing the one word in different ways in this song. Raval Jamaier roughly translates to long may you live though it may more literally mean many lives or multi- lives which get at the idea of living for many years. I didn't find any simple audio player that could read Georgian text out loud but did eventually stumble upon text for Maral Jame where the text was broken up confirming that that was something which indeed occurred with the words. Given that I'm hoping the salabic emphasis in my transcription is at least passable.
[snorts] There are some vowels that seem added from the vanilla words that I didn't have an explanation for. So, if you're sharp with Georgian, let me know how this could be improved. Now, the mind-blowing thing about Georgian microonal music is that the tuning might not be completely figured out. Modern innovations probably fail to explain it completely. It's not just intriguing for sounding really unlike 12 tet music, but for its impenetrability and mysteriousness, which was famously a challenge even for the astute pedimon. This leads to seeing generalizations online that often appear to be contradictions. For example, due to the microonal Facebook groups, I had seen ideas that the scales they used could be explained with tetricot temperament, but

that's a bit of an overgeneralization. The simplest way to explain things is that they use sevent or seven tone equal temperament as a main scale while inflecting it using adaptive intonation. The reason we know this physically is because the folk panduri often accompanying the music is fredded in seven tone equal temperament. And as such the voices have some obligation to conform to it. Similarly to how in western music we must tune near to the 12 tone equal tempered keyboards. The step sizes of Georgian music should sound like seven tone equal temperament. While the purposes for adaptive intonation seem to include tuning fifths and octaves purely as well as infllecting thirds enough to net major and minor triads at key points. Major and minor triads are used as consonances, although the main type of consonants is a suspended fourth with a root, fourth, and fifth. [music]
John A. Graham cites examples such as the 145 choir to point out the ubiquity of the sorority. Such suspended fourth chords may have Pythagorean intonation or a fourth plus neutral second. Harmonic sorities in Georgian music can get quite adventurous and even feature held chords like a just major 6th and neutral 7th both being held from the root at the same time.
In my opinion, Macakaz Eraanids offers a nice coherent explanation for these sorts of adaptations. He was the one that helpfully mentioned that the singers aim for major or minor triads. A hugely important fact that helped me to notate neutral triads on paper. This is on georgenchant.com.
Although maybe that's a thing. Who knows? We mentioned that the step sizes should sound like seven tone equal temperament generally. Yet these steps may range in size from around 150 cents to 200 cents. This results in three distinct sizes of step that can be categorized afterwards. The small neutral second of 150 cents,
the near 7 second of 170 cents,
and the 200 cent whole step.
Faria Faraji's YouTube video with expert John A. Graham explains three sizes of 150, 170, and 200 cents. though Eric Vanids formalizes that into a scale and his scent values are 172 154 and 204 cents. The 204 cents comes from a Pythagorean 9 over8 ratio and the 172 cents seems like a rounded up 7 tone with 154 cent sizes filling up the octave with rounded off math. The Faria video mentions that neutral seconds are

the only step size. Though I do find whole steps and half steps occasionally, even those explicitly pointed out by other sources such as Levon the Shapi presentation on YouTube about Georgian music theory. Macaza's scale was the most useful tool for me because it provided a framework for alternating between smaller neutral seconds and near 710 neutral seconds that fit onto the scales I was hearing in Raval Jamier and others. Rabel Jamier after a solo chant opens with a big suspended fourth chord which is clearly tuned pure and thus gives the location of the single whole step in the scale for me between C and D. [singing]
Find that whole step between C and D and one can derive the rest of the notes according to the scale. I will say Maza's scale offers an explanation that helped me find a balance between having neutral seconds sound tetlike while also inflecting certain notes with major minor tonality. You see, without knowing the practiced modality, intonation varies all over the place, as is normal and expected, and you're left guessing about what kind of microonal inflections to express. When initially trying to hear the exact intonation of the pitches, I used melodine to assist and confirmed several of my suspicions. For example, the last credential chord of bar five here sounds like an F major chord with a low major third.
[singing]
A short time later in the piece, when singing this same type of figure, the third in this credential chord is so low that the F chord sounds decidedly more neutral or in between major and minor at the ends of measures 9 and 11, for example.
[singing]
I heard this initially and Melodine shows that the intonation of this chord implied to be the same everywhere is slightly more major at bar five, the first example, and neutral at bars 9 and 11, the second example, with about a 20 cent difference between bar 5's third and bar 9's third. Without this information, one might be tempted to notate these differently, but I doubt that's in accordance with the practice. I don't think they're going for a neutral triad there. They're going for a major triad. So, we notate such a chord as major at each of these moments since it is intended to be instead of the first as major and the second as neutral. We do the same with any other decidedly repeated figures in the music.

This is why transcribing from exact pitches isn't enough. Transcription requires some kind of understanding about what is intended. As we shall soon see when building the scale, we also run into an intriguing situation involving D versus D down. Based on Raval Jamier using G, C, and D in the opening sus chord with a C to D spanning around 200 cents, we can build Malcas's entire scale with both tetra chords. Here you can see that the scale is G F up, E down, D, C, B flat up, A down, G. However, we're not done with the notion of scale yet, at least in this piece of music, as there are going to be some exceptions. So, in my mind, based on what I've read and heard, here are the things we need to aim for. Tuning pure fifths and octaves. Making sure steps mostly sound like seven tet steps with some small neutral seconds and rarely whole steps. Using the same inflected scale and creating major and minor triads when possible, also tuned with a pure fifth and major third inside. With those requirements, our piece here has some notable characteristics that make it impossible to just stick to the 1G scale here. [snorts]
The best explanation of the 145 chord here,
is indeed that it is a near purely tuned GC D, not one with neutral seconds inside, though those exist commonly all over. Later in the piece, though, the baseline moves downwards to F from G, harmonizing purely with C in clear parallel fifths with G D. So that would indicate another whole step in the baseline from G to F. We can use this whole step to build another scale. And in fact, this second slightly differently inflected scale consistently shows up in the music's baseline as we would expect. That scale is C, B flat up, A down, G, F, E flat up, D down, C. With both of the scales in play in their respective octaves, the ambitus or range of the entire construct is from bass C to treble G. We even hear these two extremes together at bar six.
In a few recordings, I have seen Georgian music use different microonal inflections for a pitch from one octave to the next. So, we know this is possible in practice with D down versus D and E flat up versus E down. Due to tuning the octaves purely, I observe that the E down that we have in the high register gets changed to E flat up every time it appears, except in the solo opening chant. and its restatement.
>> Changing the high note from E down to E

flat up makes it harmonize with octaves in the bass, which is quite common. As for D down versus D, however, they are mostly separated and can thus exist in their own respective registers without alteration.
The D down in the bass serves the purpose of harmonizing a pure fifth below the A down in a rising line
[singing]
>> as well as creating a seven tet step above C and a small neutral second below the E flat up melodically in the baseline.
[singing]
The higher D harmonizes a pure fifth above the G. There is one time where the bass is D down holds out in bar six and a very short high D is sung against it which I confirmed with Melodine. Since it's such a small passing note, the impure octave at that moment isn't too big of a deal and we can keep both notes the same. In bar 8 and bar 10, the high D is consistently sung flat enough to sound more like a D down instead, even though it's against the G, which I also confirmed with Melodine.
[singing]
But just like the earlier situation with F major versus F neutral, I don't believe it's helpful to notate that high note as D down to match what's heard, as the directive should be to tune the fifth pure to the G below. But seven tet sounding fifths are very much allowed and can be part of the music. And it's quite remarkable how consistent that is. It's just that I haven't seen any piece of evidence saying that such a microchmatic adjustment would be a part of the way the singers think about the pitches. If so, I'm sure it would be front and center when discussing the older tuning system. With such observations altogether, the non- octave equivalent scale one gets is something like G F up E down D C B flat up A down G F E flat up D down C
with E down altered to E flat up. You can see the tetracordal logic in such a thing corresponding with other scales. The real question lies in what equal tuning to use as a subset, which is the exercise I'm engaging in across multiple genres on this channel. Tuning systems with good fifths that differentiate a small neutral second, near 710 second, and whole tone should be the ones that work out. Mapped to Macaza's scale diagram, it looks like this in 34,
this in 41,
and this in 48.
Disappointingly, these scales appear to

have a suspicious lack of Stein Zimmerman accidentals or standard half sharps and flats, which is hilarious because all three of these tuning systems make use of them. This is because usually the small neutral seconds occur between two notes already inflected with arrows such as A down to B flat up or E down to F up leaving the near seventet like seconds between the naturals and steps above or below them like D to E down or B flat up to C. It's also worth noting that this transcription is readable in 22, but the two types of neutral seconds in 22 are conflated to be the same value 164 cents. So significant nuance is lost in comparing the opening passage between 22, 34, 41, and 48. I think 34 offers the most convincing interpretation. 34et that is. In 22, the rare major second sizes are too large and makes certain shifts between roots too dramatic. And the near seventically correct, though, it does give close sounding major and minor chords.
[singing and music]
[music]
41. T sounds too diatonic when C moves to B flat and other similar places while also tuning the gap from E flat up to A down which does occur too wide. [music]
[singing]
48 tet probably sounds the second most correct compared to 34 tet with its main drawbacks being that it sounds a little too close to 12 tet and that the seven tet like fourths and fifths don't seem as
>> [music]
[singing]
>> In 304, the compromises between inflected notes seem just right and the distances fit the best. Plus, the difference between the small neutral second and mere 7T second is the most exaggerated, so you can hear the unevenness. [music]
>> [singing]
[music]
>> After deciding ultimately on 34 tet, I can't help but wonder what things might look like if the music was notated in a 7 x n tet such as 21 tet or 28 tet. Reading in seven tet multiples is pretty alien to dietonic notation though as such tunings don't use sharps or flats at all. Imagine Pyon's reaction. Honestly, I'm thinking my transcription is more readable than that seven tet times an integer stuff as it gives enough microtal symbols to really impart meaning given the game of recreationally transcribing music in various tets or

tone equal temperaments. Hopefully you
enjoy this scene in 34. Before we check
it out, please I implore you to let me
know if there's anything I missed or
said about the practice that's factually
incorrect. Oh, and listen to lots of
Georgian music. Without further ado,
here's the transcription I came up with.
[singing]
I me [music]
[singing]
[singing]
[music]
[singing]
How [singing] I sh [music]
[singing]
Oh
[singing]
sh.
[singing and music]
[singing]
[singing]
[music]
>> [singing]
>> Oh,
[singing]
now
[singing]
[singing]
there
[music]
[singing]
Oh,
[music]
how are [singing]
you?